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UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/806,500	03/22/2004	Francis R. Corrado	P18941	2780

46915 7590 01/12/2007 KONRAD RAYNES & VICTOR, LLP. ATTN: INT77 315 SOUTH BEVERLY DRIVE, SUITE 210 BEVERLY HILLS, CA 90212	**EXAMINER** DARE, RYAN A

ART UNIT	PAPER NUMBER
2186	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/12/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

	Application No.	Applicant(s)
	10/806,500	CORRADO, FRANCIS R.
Office Action Summary	Examiner	Art Unit	
	Ryan Dare	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 March 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-38* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-38* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on <u>22 March 2004</u> is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date *10/03/05*.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____ .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

2.   Claims 8 are rejected under 35 U.S.C. 112, second paragraph, as being

indefinite for failing to particularly point out and distinctly claim the subject matter which

applicant regards as the invention. Claims 8, 20, and 34 recite the limitation "the

overlap" in line 4. There is insufficient antecedent basis for this limitation in the claims.

Claim Rejections - 35 USC § 102

1.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that

form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2.   Claims 1-38 are rejected under 35 U.S.C. 102(b) as being anticipated by King et

al., US Patent 6,530,004.

3.   With respect to claim 1, King teaches a method, comprising:

providing a source map indicating blocks of data striped across a first plurality of

storage units and a destination map indicating blocks of data striped across a second

plurality of storage units, wherein data is migrated from stripes indicated in the source

map to corresponding stripes indicated in the destination map, in col. 5, lines 35-50

which describes a particular source map to destination map shown in fig. 5; and

in response to determining that the source stripe and the destination stripe

occupy a same physical location on the storage units, writing the data from a source

stripe to a copy area and writing the data from the copy area to a corresponding

destination stripe, in col. 7, lines 13-26.

4.   With respect to claim 2, King teaches the method of claim 1, further comprising:

determining units of operation, wherein one unit of operation comprises one stripe in the

source map to migrate to one stripe in the second map, wherein the data is migrated by

processing the units of operation, in col. 5, lines 26-27.

5.   With respect to claim 3, King teaches the method of claim 2, further comprising:

locking data in one source stripe in one unit of operation currently being migrated; and

unlocking the locked data after completing the migration of the source data in the unit of

operation, in col. 5, lines 26-30.

6.   With respect to claim 4, King teaches the method of claim 2, further comprising:

indicating a number of a current unit of operation being processed; and indicating data

is being copied through the copy area in response to determining that the source stripe

and destination stripe involved in the current unit of operation occupy the same physical

locations, in col. 7, lines 13-25.

7.   With respect to claim 5, King teaches the method of claim 4, further comprising:

incrementing the current unit of operation in response to completing copying the source

stripe to the destination stripe for one unit of operation; and indicating data is not being

copied through the copy area in response to completing copying the source stripe to the

destination stripe for one unit of operation, in col. 5, lines 26-30.

8.   With respect to claim 6, King teaches the method of claim 4, further comprising:

determining whether data is indicated as being copied through the copy area

after recovering from a failure, in col. 1, line 51 through col. 2, line 11;

writing the data from the copy area to the destination stripe in the indicated

current unit of operation in response to determining that the data is indicated as being

copied through the copy area, in col. 5, lines 4-30; and

continuing processing the units of operation to complete the migration of the

source stripes to the destination stripes, in col. 5, lines 26-34.

9.   With respect to claim 7, King teaches the method of claim 1, further comprising:

determining a depth of a source volume including the source stripes and a depth

of a destination volume including the destination the destination stripes, in col. 5, line 51

through col. 6, line 14;

writing the source stripes in descending order from one source stripe at a first

physical location of the source volume to the destination stripes in response to

determining that the destination volume depth exceeds the source volume depth, in col.

6, line 53 through col. 7, line 12; and

writing the source stripes in ascending order from one source stripe at a last

physical location of the source volume to the destination stripes in response to

determining that the destination volume depth does not exceed the source volume

depth, in col. 6, lines 15-52.

10.   With respect to claim 8, King teaches the method of claim 1, further comprising:

determining whether the migration of the data in the source map to locations in the

destination map is impermissible; and aborting the migration in response to determining

that the overlap is impermissible, in col. 4, lines 50-57.

11.   With respect to claim 9, King teaches the method of claim 8, wherein the

migration is permissible comprises: determining a depth of a source volume including

the source stripes and a depth of a destination volume including the destination stripes;

determining a source physical location on one storage unit of a first block in a first stripe

in the destination volume and a destination physical location on one storage unit of a

first block in a first stripe in the source volume; and determining that the migration is

impermissible in response to determining: (1) that the destination volume depth is less

than or equal to the source volume depth and the destination physical location is greater

than the source physical location or (2) that the destination volume depth is greater than

the source volume depth and the destination physical location is less than the source

physical location, in col. 5, line 51 through col. 7, line 12.

12.   With respect to claim 10, King teaches the method of claim 1, wherein a number

of the first plurality of storage units is different than a number of the second plurality of

storage units, in col. 7, lines 50-55.

13.   With respect to claim 11, King teaches the method of claim 1, further comprising:

        detecting a failure of one of the first plurality of storage units, in col. 1, lines 51-

57;

        rebuilding data from the failed storage units using parity data on the first plurality

of storage units that did not fail, wherein the migration is performed to transfer the

rebuilt data and the data in the first plurality of storage units that did not fail to the

second plurality of storage units including the storage units of the first plurality that

survived, in col. 5, lines 35-50.

14.   With respect to claim 12, King teaches the method of claim 1, wherein the

storage units comprise magnetic hard disk drives and wherein a Redundant Array of

Independent Disk (RAID) algorithm is used to stripe the data to the disks, in col. 1, lines

25-39.

15.   With respect to claims 13-23, Applicant claims a system that corresponds to the

method of claims 1-11 and is therefore rejected using similar logic.

16.   With respect to claims 24-26, Applicant claims a system that corresponds to the

method of claims 1, 4 and 12, and is therefore rejected using similar logic.

17.   With respect to claims 27-38, Applicant claims an article of manufacture that

corresponds to the method of claims 1-12 and is therefore rejected using similar logic.

Conclusion

18.   The prior art made of record on form PTO-892 and not relied upon is considered

pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to

consider these references fully when responding to this action. The documents cited

therein teach similar data migration systems.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Ryan Dare whose telephone number is (571)272-4069.

The examiner can normally be reached on Mon-Fri 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Ryan A. Dare
January 6, 2007

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